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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,464	01/27/2004	David Lewis	174/285	3178
36981 7590 05/30/2007 FISH & NEAVE IP GROUP ROPES & GRAY LLP 1211 AVENUE OF THE AMERICAS NEW YORK, NY 10036-8704			EXAMINER BONURA, TIMOTHY M	
			ART UNIT 2114	PAPER NUMBER
			MAIL DATE 05/30/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/766,464	Applicant(s) LEWIS ET AL.	
	Examiner Tim Bonura	Art Unit 2114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 and 37-51 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24-28 is/are allowed.
- 6) ☒ Claim(s) 1-3, 16-23, 37-40 and 42-51 is/are rejected.
- 7) ☒ Claim(s) 4-15 and 41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-3, 16-23, 37-40, and 42-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ding, et al, U.S. Patent Number 7,058,880 and further in view of Walker, et al, U.S. Patent Number 6,845,472.

4. Regarding claim 1:

- a. Regarding the limitation of "a memory in which the configuration data and error check data associated with the configuration data is stored," Ding discloses a system with a programmable logic circuit with a memory for storing data, which can be extracted for verification. (Lines 51-56 of Column 1). Ding does not disclose a system wherein configuration data is stored in the memory. However, Walker discloses a system with error checking using ECC in memory area with extended period of time between accesses, such as a memory control device. (Lines 30-35 and Lines 60-65 of Column 6). It would have been one of ordinary skill at the time of the invention to combine the

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PLD of Ding with the error checking of Walker. One would have been inclined because Walker discloses a system with an advantage of check error before accumulation can occur and error becoming uncorrectable. (Lines 30-35 of Column 6).

b. Regarding the limitation of "error correction circuitry coupled to at least some of the memory to analyze the configuration data stored in the memory to determine if any values have changed after initial configuration of the memory and to correct any values that have changed," Walker discloses a system wherein error are checked and corrected if found in memory. (Lines 39-46 of Column 6).

5. Regarding claim 2:

c. Regarding the limitation of "read from the memory a portion of the configuration data and an associated portion of the error check data," Walker disclose the ability to error check any piece of memory in a computer sub-system. (Lines 35-38 of Column 6).

d. Regarding the limitation of "apply an error correcting code on the portion of the configuration data and the associated portion of the error check data to determine whether at least one bit in the portion of the configuration data has an error and to correct the at least one bit that has the error," Walker discloses a system that uses ECC bit checking to detect and correct errors. (Lines 35-41 of Column 6).

6. Regarding claim 3, Walker discloses a system with a cleaning procedure that uses ECC to check data in a sub-set of memory. (Lines 34-41 of Column 6).

7. Regarding claim 16:

e. Regarding the limitation of "processing circuitry," Ding discloses a program logic circuit. (Lines 51-52 of Column 1).

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- f. Regarding the limitation of "a memory coupled to the processing circuitry," Ding discloses a program logic circuit with memory for storing data. (Lines 51-54 of Column 1).
 - g. Regarding the limitation of "a programmable logic device as defined in claim 1 coupled to the processing circuitry and the memory," Ding discloses a program logic circuit with memory contained within the circuitry for storing program data in rows and columns. (Lines 51-52 of Column 1).
- 8. Regarding claim 17, Ding discloses a system of interconnected PLD on array grid. (Lines 40-55 of Column 2).
- 9. Regarding claim 18, Ding discloses a system of interconnected PLD on array grid, connected to the PLD are EEPROM cells. (Lines 40-55 of Column 2).
- 10. Regarding claim 19, Ding discloses a system of interconnected PLD on array grid with a plurality of logic array blocks. (Lines 40-55 of Column 2).
- 11. Regarding claim 20:
 - h. Regarding the limitation of "a memory in which the configuration data and error check data associated with the configuration data is stored," Ding discloses a system with a programmable logic circuit with a memory for storing data, which can be extracted for verification. (Lines 51-56 of Column 1). Ding also discloses storing data in rows and columns. (Lines 45-50 of Column 20. Ding does not disclose a system wherein configuration data is stored in the memory. However, Walker discloses a system with error checking using ECC in memory area with extended period of time between accesses, such as a memory control device. (Lines 30-35 and Lines 60-65 of Column 6). It would have been one of ordinary skill at the time of the invention to combine the PLD of Ding with the error checking of Walker. One would have been inclined because

Walker discloses a system with an advantage of check error before accumulation can occur and error becoming uncorrectable. (Lines 30-35 of Column 6).

- i. Regarding the limitation of "at least on scrubber coupled to the memory," Walker discloses a system with a cleaning procedure for checking memory errors. (Lines 30-32 of Column 6).
 - j. Regarding the limitation of "read from the memory a portion of the configuration data and an associated portion of the error check data," Walker disclose the ability to error check any piece of memory in a computer sub-system. (Lines 35-38 of Column 6).
 - k. Regarding the limitation of "apply an error correcting code on the portion of the configuration data and the associated portion of the error check data to determine whether at least one bit in the portion of the configuration data has an error and to correct the at least one bit that has the error," Walker discloses a system that uses ECC bit checking to detect and correct errors. (Lines 35-41 of Column 6).
12. Regarding claim 21, Walker discloses a system with a cleaning procedure that uses ECC to check data in a sub-set of memory. (Lines 34-41 of Column 6).
 13. Regarding claim 22, Walker discloses a system with a cleaning procedure that uses ECC to check data in a sub-set of memory. (Lines 34-41 of Column 6).
 14. Regarding claim 23, Walker disclose a system that using ECC codes. (Lines 39-41 of Column 6).
 15. Regarding claim 37:
 - l. Regarding the limitation of "generating and storing error check data associated with the configuration data in a memory," Ding discloses a system with a programmable logic circuit with a memory for storing data, which can be extracted for verification. (Lines 51-56 of Column 1). Ding also discloses storing data in rows and columns.

(Lines 45-50 of Column 20. Ding does not disclose a system wherein configuration data is stored in the memory. However, Walker discloses a system with error checking using ECC in memory area with extended period of time between accesses, such as a memory control device. (Lines 30-35 and Lines 60-65 of Column 6). It would have been one of ordinary skill at the time of the invention to combine the PLD of Ding with the error checking of Walker. One would have been inclined because Walker discloses a system with an advantage of check error before accumulation can occur and error becoming uncorrectable. (Lines 30-35 of Column 6).

m. Regarding the limitation of "reading a portion of the configuration data and an associated portion of the error check data," Walker discloses a system in which a portion of memory is read for error checking with a cleansing procedure. (Lines 30-32 of Column 6).

n. Regarding the limitation of "determining if an error has occurred based on the portion of the configuration data and the associated portion of the error check data," Walker discloses a system in which errors are recorded in corrected. (Lines 44-46 of Column 6).

o. Regarding the limitation of "correcting the portion of the configuration data in response to the determining," Walker discloses a system in which errors are recorded in corrected. (Lines 44-46 of Column 6).

16. Regarding claim 38, Ding discloses a system in which the data is stored with rows and columns of memory cells. (Lines 46-50 of Column 2).

17. Regarding claim 39, Ding discloses a system in which the data is stored with rows and columns of memory cells. (Lines 46-50 of Column 2).

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18. Regarding claim 40, Ding discloses a system in which the data is stored with rows and columns of memory cells. (Lines 46-50 of Column 2).

19. Regarding claim 42, Walker disclose a system that using ECC codes. (Lines 39-41 of Column 6).

20. Regarding claim 43, Walker disclose a system that using ECC codes. (Lines 39-41 of Column 6).

21. Regarding claim 44, Walker discloses a system with error checking using ECC in memory area with extended period of time between accesses, such as a memory control device. (Lines 30-35 and Lines 60-65 of Column 6). Walker discloses a system in which errors are recorded in corrected. (Lines 44-46 of Column 6).

22. Regarding claim 45:

p. Regarding the limitation of "generating and storing a parity bit associated with each representative row and each representative column of memory cell in which the configuration data is stored," Ding discloses a system with a programmable logic circuit with a memory for storing data, which can be extracted for verification. (Lines 51-56 of Column 1). Ding also discloses storing data in rows and columns. (Lines 45-50 of Column 20). Ding does not disclose a system wherein configuration data is stored in the memory. However, Walker discloses a system with error checking using ECC in memory area with extended period of time between accesses, such as a memory control device. (Lines 30-35 and Lines 60-65 of Column 6). It would have been one of ordinary skill at the time of the invention to combine the PLD of Ding with the error checking of Walker. One would have been inclined because Walker discloses a system with an advantage of check error before accumulation can occur and error becoming uncorrectable. (Lines 30-35 of Column 6).

- q. Regarding the limitation of "computing a first parity on a given representative column of memory cells," Ding discloses verifying data in N-2 register using the N-1 registers as verification. (Lines 60-67 of Column 7).
 - r. Regarding the limitation of "computing a second parity on a given representative column of memory cells," Ding discloses verifying data in N-1 register using the N registers as verification. (Lines 60-67 of Column 7).
 - s. Regarding the limitation of "determining if an error has occurred in a cell in a given representative row and the given representative column based on the first parity and the second parity," Ding discloses a system in which errors in data can be verified in memory elements. (Lines 26-65 of Column 3).
 - t. Regarding the limitation of "correcting the portion of the configuration data in response to the determining," Walker discloses a system in which errors are recorded in corrected. (Lines 44-46 of Column 6).
23. Regarding claim 46, Walker discloses a system with a parity bit of even and odd for in column. (Lines 12-30 of Column 5).
24. Regarding claim 47, Walker discloses a system wherein parity bits can be used to correct errors in data. (Lines 32-37 of Column 5).
25. Regarding claim 48, Walker discloses a system wherein parity bits can be used to correct errors in data. (Lines 32-37 of Column 5).
26. Regarding claim 49:
- u. Regarding the limitation of "generating and storing a parity bit associated with each representative row and each representative column of memory cell in which the configuration data is stored," Ding discloses a system with a programmable logic circuit with a memory for storing data, which can be extracted for verification. (Lines 51-56 of

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Column 1). Ding also discloses storing data in rows and columns. (Lines 45-50 of Column 20. Ding does not disclose a system wherein configuration data is stored in the memory. However, Walker discloses a system with error checking using ECC in memory area with extended period of time between accesses, such as a memory control device. (Lines 30-35 and Lines 60-65 of Column 6). It would have been one of ordinary skill at the time of the invention to combine the PLD of Ding with the error checking of Walker. One would have been inclined because Walker discloses a system with an advantage of check error before accumulation can occur and error becoming uncorrectable. (Lines 30-35 of Column 6).

v. Regarding the limitation of "computing a first parity on a given representative column of memory cells," Ding discloses verifying data in N-2 register using the N-1 registers as verification. (Lines 60-67 of Column 7).

w. Regarding the limitation of "computing a second parity on a given representative column of memory cells," Ding discloses verifying data in N-1 register using the N registers as verification. (Lines 60-67 of Column 7).

x. Regarding the limitation of "generating a correct value for the data in one cell based on the first parity the second parity and data in one cell," Walker discloses a system in which errors are recorded in corrected. (Lines 44-46 of Column 6).

27. Regarding claim 50, Walker discloses a system with a parity bit of even and odd for in column. (Lines 12-30 of Column 5).

28. Regarding claim 51, Walker discloses a system wherein parity bits can be used to correct errors in data. (Lines 32-37 of Column 5).

Allowable Subject Matter

29. Claims 24-28 are allowed.

30. The following is an examiner's statement of reasons for allowance the prior art of record does not teach the limitation of "a memory array of representative rows and representative columns of cells in which the configuration data and error check data associated with the configuration data are stored; first circuitry having an input operative to receive data from each cell in a representative row of the array and an output, the first circuitry generating a first parity for the data in the representative row at the output; second circuitry having an input operative to receive data from each cell in a representative column of the array and an output, the second circuitry generating a second parity for the data in the representative column at the output; third circuitry having a first input operative to receive the output of the first circuitry, having a second input operative to receive the output of the second circuitry, and an output, the third circuitry sending a signal at the output indicative of whether an error has occurred in a cell in the representative row and the representative column based on the first parity and the second parity; and fourth circuitry having a first input operative to receive the output of the third circuitry, a second input operative to receive data from the cell in the representative row and the representative column, and an output, the fourth circuitry sending a signal at the output having a correct value."

31. Regarding claim 24, the prior art of record does not teach the limitation of "a memory array of representative rows and representative columns of cells in which the configuration data and error check data associated with the configuration data are stored; first circuitry having an input operative to receive data from each cell in a representative row of the array and an output, the first circuitry generating a first parity for the data in the representative row at the output; second circuitry having an input operative to receive data from each cell in a representative

column of the array and an output, the second circuitry generating a second parity for the data in the representative column at the output; third circuitry having a first input operative to receive the output of the first circuitry, having a second input operative to receive the output of the second circuitry, and an output, the third circuitry sending a signal at the output indicative of whether an error has occurred in a cell in the representative row and the representative column based on the first parity and the second parity; and fourth circuitry having a first input operative to receive the output of the third circuitry, a second input operative to receive data from the cell in the representative row and the representative column, and an output, the fourth circuitry sending a signal at the output having a correct value." Claims 25 and 26 depend on 24 and are thereby allowed also.

32. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

33. Claims 4-15, and 41 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

34. The following is a statement of reasons for the indication of allowable subject matter: Regarding claim 4, the prior art of record does not teach the limitation of "the configuration data is stored in an array of representative rows and representative columns of cells, each cell storing one bit of the configuration data; and the error check data is stored in a last representative column of cells and a last representative row of cells in the array, each cell storing one bit of the error check data."

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35. Regarding claim 10, the prior art of record does not teach the limitation of "each bit of the configuration data is stored in a first cell, a second cell, and a third cell in the memory."

36. Regarding claim 14, the prior art of record does not teach the limitation of "a resistive element coupled to an output of the error correction circuitry; and a capacitive load coupled to the resistive element, wherein the resistive element and the capacitive load are operative to reduce static hazards associated with the error correction circuitry."

37. Regarding claim 41, the prior art of record does not teach the limitation of "the portion of the configuration data is at least two partial representative columns of cells in the memory that are physically non-contiguous."

Response to Arguments

38. The examiner would like to point out that the applicant was correct with the assumption of the arguments based on Patent number 7,058,880. And would apologize for any confusion in the mis-typed number of the previous action.

39. Regarding the allowability of claim 24 (and thereby 25-26), the claims are allowed. See above.

40. Applicant's arguments filed 03/05/2007 have been fully considered but they are not persuasive.

41. Regarding the arguments concerning claim 1:

y. The applicant argues (Page 15 of the response) that the prior art combination of record (Ding and Walker) do not teach or disclose "a system in which a memory stores both configuration data and error check data associated with the configuration data."

Specifically, the applicant argues that Walker does not disclose or suggest storing the data on a single memory. The examiner contends that the prior art of the record

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(Walker) does disclose this feature. The applicant points out that the data is stored on a series of DIMMs (labeled 42a-e in figure 6). The examiner contends that these DIMMs constitute one memory unit, as shown in figure 6 as "Memory sub-system" (item 40). Since the prior art of record treats the DIMMs as "a memory sub-system" (Lines 52-54 of Column 6), which the examiner interprets as being equivalent a single memory unit. And since the applicant has acknowledge that the DIMMs (items 42a-e) store both the configuration data and the error check data (the response page 15 middle paragraph, 5th-11th lines), the examiner further equates the memory sub-system as a single memory storing both types of data as stated in the claims as "a memory that stores both configuration data and error check data"

42. Regarding claims 20, 37, 45, and 49, please refer to the arguments for claim 1 above.

Conclusion

43. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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44. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tim Bonura**.

- The examiner can normally be reached on **Mon-Fri: 8:30-5:00**.
- The examiner can be reached at: **571-272-3654**.

45. If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, **Scott Baderman**.

- The supervisor can be reached on **571-272-3644**.

46. The fax phone numbers for the organization where this application or proceeding is assigned are:

- **703-872-9306 for all patent related correspondence by FAX.**

47. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov/>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

48. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **receptionist** whose telephone number is: **571-272-2100**.

49. Responses should be mailed to:

- **Commissioner of Patents and Trademarks**

P.O. Box 1450

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tmb
May 20, 2007


SCOTT BADERMAN
SUPERVISORY PATENT EXAMINER